

REMARKS

Claims 1-3 and 5-7 are pending. By this Amendment, claim 1 is amended, no claims cancelled, and no new claims are added. Support for this Amendment can be found in the original specification as filed, including, for example, paragraphs [0017], [0028], [0033]-[0040]. As such, no new matter is believed to be added by way of this Amendment.

**Claim Rejections – 35 U.S.C. § 112**

The September 14, 2010 Office Action rejected pending claims 1-3 and 5-7 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement as it relates to the limitation “a density thereof is 0.5g/cm<sup>3</sup> or more,” as the written description applies this limitation to the molded based material and not the pre-molded base material. Applicants have amended independent claim 1, which Applicants believe render this rejection moot. Accordingly, Applicants respectfully request reconsideration and withdrawal of the foregoing rejection.

**Claim Rejections – 35 U.S.C. § 103**

The September 14, 2010 Office Action rejected claims 1-3 and 5-7 under 35 U.S.C. § 103(a) as being unpatentable over JP 09-169897 to Mukai et al. in view of U.S. Patent Publication 2003/0038405 to Bopp et al. and further in view of JP 2001-303489 to Kashiwai et al. By way of this Amendment, Applicants have amended independent claim 1 to more clearly define the invention and advance prosecution. For the following reasons, Applicants respectfully traverse the rejection in light of independent claim 1 as amended.

The Cited References Fail to Teach, Disclose or Suggest All Claim Limitations

A *prima facie* case of obviousness has not been established, as the cited references, individually or in combination, do not teach, disclose or suggest all of the claim limitations of independent claim 1 as amended. The presently claimed invention in independent claim 1, as amended, recites:

A method for manufacturing a molded woody article, comprising:

compression molding a mat-shaped base material containing wood fibers, polylactic acid fibers made of polylactic acid having a crystallinity of 30% to 50% to a crystallization rate of 100%, and an inorganic filler at a temperature not less than a melting point of said polylactic acid fibers, thereby forming a flat plate-shaped base material; and

maintaining said molded base material at a temperature close to a crystallization temperature of said polylactic acid fibers for a period of time that allows a crystallinity of 30% to 50% of the polylactic acid fibers, thereby crystallizing the polylactic acid fibers;

wherein in the compression molding step, the base material is prepared such that a ratio of the wood fibers to the polylactic acid fibers is in a range of 7:3 to 5:5 by weight, and a ratio of the inorganic filler to the polylactic acid fibers is in a range of 0.1 to 5% by weight; and

wherein the molded woody article has a density in a range of  $0.5\text{g/cm}^3$  to  $0.7\text{g/cm}^3$ .

Mukai et al. is directed at a biodegradable fiber reinforced molded article and its production, wherein the biodegradable fiber reinforced molded article is composed of a biodegradable fiber of 5-500 parts and aliphatic polyester resin of 100 parts. Mukai et al. teaches that the method of manufacturing the biodegradable fiber reinforced molded article includes the steps of dispersing highly heat-resistant biodegradable fiber of 5-500 parts and the aliphatic

polyester resin of 100 parts into a liquid medium, forming a sheet by removing the liquid medium, drying the sheet, and compression molding the sheet at a temperature not less than the melting point of the aliphatic polyester resin. As admitted in the Office Action, Mukai et al. does not disclose an inorganic filler, holding the product at or near a certain temperature to crystallize the polylactic acid, or a ratio of the wood fibers to the polylactic acid fibers in a range of 7:3 to 5:5 by weight.

Bopp et al. is directed at a method for producing semicrystalline polylactic acid articles, which includes the steps of heating a sheet of amorphous polylactic acid resin to temperature between 80°C and 160°C until a semicrystalline sheet is formed, and thermoforming the semicrystalline sheet over a mold at a temperature of 80°C or less, preferably at a temperature no greater than 35°C.

Kashiwai et al. is directed at a biodegradable sheet for a garbage bag, which is composed of a complex polylactate fiber of 40-60 wt-% and 60-40 wt-% of wood pulp or Manila hemp fiber.

None of the cited references – Mukai et al., Bopp et al. nor Kashiwai et al. – individually or in combination, teach, disclose or suggest all of the claim limitations of the presently claimed invention. Particularly, none of the cited references teach, disclose or suggest the claim limitation of “polylactic acid fibers made of polylactic acid having a crystallinity of 30% to 50% to a crystallization rate of 100%.” The Office Action admits Mukai et al. does not disclose holding the product at or near a certain temperature to crystallize the polylactic acid. As provided above, Bopp et al. teaches forming a semicrystalline sheet. Further, none of the cited

references teach, disclose or suggest the claim limitation that “the molded woody article has a density in a range of  $0.5\text{g/cm}^3$  to  $0.7\text{g/cm}^3$ .”

Accordingly, a *prima facie* case of obviousness has not been established, as the cited references, individually or in combination, do not teach or suggest all of the features included in independent claim 1 as amended. If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, Applicant is not presenting additional arguments with respect to the patentability of the dependent claims, although Applicant does not acquiesce to any of the rejections and reserves the right to raise additional arguments with respect to the patentability of such claims. As all remaining pending claims depend directly or indirectly from one of the subject claims, Applicant respectfully requests that the rejections under §103 be withdrawn. Thus, reconsideration and withdrawal of the rejection of claims 1-3 and 5-7 is respectfully requested.

#### The Proposed Motivation to Combine is Faulty

The September 14, 2010 Office Action relies upon Bopp et al. for an inorganic filler and holding the product at or near a certain temperature to crystallize the polylactic acid. The sole reason provided to combine the teachings of Bopp et al. with the method of Mukai et al. is “to increase the heat resistance of the molded article.” The proposed reason to combine these two cited references, however, is faulty. The inorganic filler in Bopp et al. is added as “a nucleating agent in order to improve its ability to crystallize quickly.” (Bopp et al. at para. [0032].) There is a disconnect between the Examiner’s reason to combine – to increase the heat resistance of the molded article – and the rationale provided in Bopp et al. for using an inorganic filler – to

increase the rate of crystallization. Thus, there is no reasonable rationale that a person of ordinary skill in the art would have been motivated to combine the teachings of Mukai et al. with the teachings of Bopp et al. to achieve the claimed invention; but instead is based merely on improper hindsight reasoning as provided in Applicants' claimed invention.

Moreover, Bopp et al. is directed at a method for producing semicrystalline polylactic sheets and then thermoforming the sheets on a relatively cold mold to produce polylactic acid articles having improved heat resistance. Bopp et al. does not contain any disclosure, teaching or suggestion of using any "natural fibers." To the contrary, Mukai et al. is directed to a fiber reinforced molded articles containing natural fibers. Thus, Bopp et al. and Mukai et al. are directed at unrelated technical fields.

Thus, a *prima facie* case of obviousness has not been established, as there is no reasonable rationale to combine the cited references to arrive at the limitations of independent claim 1 as amended. If an independent claim is non-obvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Therefore, Applicant is not presenting additional arguments with respect to the patentability of the dependent claims, although Applicant does not acquiesce to any of the rejections and reserves the right to raise additional arguments with respect to the patentability of such claims. As all remaining pending claims depend directly or indirectly from one of the subject claims, Applicant respectfully requests that the rejections under §103 be withdrawn. Also, because a *prima facie* case of obviousness has not been established, Applicant does not comment further here on the suitability of combining or modifying the cited references. Thus, reconsideration and withdrawal of the rejection of claims 1-3 and 5-7 is respectfully requested.

**Conclusion**

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



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